

1FW



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 02-1227-A)

In re Application of:)	
)	
Yijia P. Bao, et al.)	
)	Examiner: TBA
Serial No.: 10/735,357)	
)	Art Unit: 1645
Filed: December 12, 2003)	
)	Confirmation No. 2590
For: DIRECT SNP DETECTION WITH)	
UNAMPLIFIED DNA)	

TRANSMITTAL LETTER

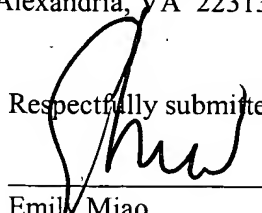
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

- In regard to the above identified application.
1. We are transmitting herewith the attached:
 - a) Ninth Supplemental Information Disclosure Statement with copies of 48 references
 - b) IDS PTO Form-1449
 - c) Return Receipt Postcard
 2. With respect to fees:
 - a) No check is attached.
 - b) **General Authorization:** Please charge any underpayment or credit any overpayment our Deposit Account, No. 13-2490.
 3. **CERTIFICATE OF MAILING UNDER 37 CFR § 1.8:** The undersigned hereby certifies that this Transmittal Letter and the paper, as described in paragraph 1 hereinabove, are being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 19 day of August, 2004.

Date: Aug. 19, 2004

Respectfully submitted,



Emily Miao
Registration No. 35,285



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Our Case No. 02-1227-A)

In re Application of:)	
)	
Yijia P.Bao, et al.)	Examiner: TBA
)	
Serial No. 10/735,357)	
)	Group Art Unit: 1645
Filed: December 12, 2003)	
)	
For: DIRECT SNP DETECTION WITH)	Confirmation No.: 2590
UNAMPLIFIED DNA)	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

NINTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

In order to comply with discretionary regulations 37 CFR §§1.97 and 1.98, attached hereto is Form PTO-1449, copies¹ of the documents listed thereon. These documents contain information which the Examiner may consider to be important in deciding whether to allow the present application to issue as a patent.

1. Stec, et al., U.S. Patent No. 5,151,510, issued 09/29/92
2. Nikiforov, et al., U.S. Patent No. 5,679,524, issued 10/21/97
3. Mirkin, et al., U.S. Patent No. 6,361,944, issued 03/26/02
4. Mirkin, et al., U.S. Patent No. 6,417,340, issued 07/09/02

¹To the extent that a document is listed and no copy of same is attached, then such document is not at the present time available to the undersigned or is available in the file of a parent application. If a listed document is not in the English language and an English translation is readily available, such translation is also attached; if translation is not attached it is not readily available to the undersigned. If a foreign language patent document is cited, and an English language equivalent is known to the undersigned, then such equivalent patent is also cited on the attached form along with the corresponding foreign language patent and a connecting arrow indicated therebetween; if no such English language equivalent is cited, then none is known to undersigned.

5. Mirkin, et al., U.S. Patent No. 6,506,564 B1, issued 01/14/03
6. Mirkin, et al., U.S. Patent Application No. US2004/0086897 A1, published 05/06/04
7. International Application No. WO 95/12607 published 05/11/95
8. International Application No. WO 98/04740 published 02/05/98
9. International Application No. WO 98/59066 published 12/30/98
10. International Application No. WO 01/00876 A1 published 01/04/01
11. International Application No. WO 01/51665 A2 published 07/19/01
12. International Application No. WO 03/008539 A2 published 01/30/03
13. International Application No. WO 03/095973 A2 published 11/20/03
14. Bassell, et al., "Single mRNAs Visualized by Ultrastructural In Situ Hybridization Are Principally Localized at Actin Filament Intersections in Fibroblasts", *The Journal of Cell Biology*, Vol. 126, No. 4, pp. 863-876 (August 1994)
15. Blumberg, et al., "Rapid Development of Ciprofloxacin Resistance in Methicillin-Susceptible and -Resistant *Staphylococcus aureus*", *J. Inf. Disease*, Vol. 63, pp. 1279-85 (1991)
16. Braun, et al., "DNA-templated assembly and electrode attachment of a conducting silver wire", *Nature*, Vol. 391, p. 775-778 (February 19, 1998)
17. Braun-Howland, et al., "Development of a Rapid Method for Detecting Bacterial Cells *In Situ* Using 16S rRNA-Targeted Probes", *Biotechniques*, Vol. 13, No. 6, pp. 928-932 (1992)
18. Chen, et al., "A Homogeneous, Ligase-Mediated DNA Diagnostic Test", *Genome Res.*, Vol. 8, pp. 549-556 (1998)

19. Chen, et al., " Fluorescence energy transfer detection as a homogeneous DNA diagnostic method ", *Proc. Natl. Acad. Sci.*, Vol. 94, pp. 10756-10761 (1997)
20. Day, et al., "Electrophoresis for Genotyping: Microtiter Array Diagonal Gel Electrophoresis on Horizontal Polyacrylamide Gels, Hydrolink, or Agarose ", *Anal. Biochem.*, Vol. 222, pp. 389-395 (1994)
21. Edwards, et al., "Rapid and Accurate Identification of Coagulase-Negative Staphylococci by Real-Time PCR ", *J. Clin. Micro.*, Vol. 39, pp. 3047-3051 (2001)
22. Frens, et al., "Controlled Nucleation for the Regulation of the Particle Size in Monodisperse Gold Suspensions", *Nature Physics Science*, Vol. 241, pp. 20-22 (January 1, 1973)
23. Grabar, et al., "Preparation and Characterization of Au Colloid Monolayers", *Anal. Chem.*, Vol. 67, pp. 735-743 (1995)
24. Hacker, et al., " Colloidal Gold: Principles, Methods, and Applications ", M.A. Hayat, Ed. (Academic Press, San Diego), Vol. 1, Chap. 10 (1989)
25. Hamels, et al., " Consensus PCR and Microarray for Diagnosis of the Genus *Staphylococcus*, Species, and Methicillin Resistance ", *Bitechniques*, Vol. 31, pp. 1364-1372 (2001)
26. Kennedy, et al., " Large-scale genotyping of complex DNA ", *Nature Biotechnol.*, Vol. 21, pp. 1233-1237 (2003)
27. Lander, E., "Array of Hope", *Nature Genet.*, Suppl. 21, pp. 3-4 (1999)
28. LaPlanche, et al., "Phosphorothioate-modified oligodeoxyribonucleotides. III. NMR and UV spectroscopic studies of R_p - R_p , S_p - S_p , and R_p - S_p duplexes, $[d(GG_sAATTCC)]_2$, derived from diastereomeric O-ethyl phosphorothioates", *Nucleic Acids Research*, Vol. 14, No. 22, pp. 9081-9093 (1986)
29. Letsinger, et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle – Oligonucleotide Conjugates", *Bioconjugate Chem.*, Vol. 11, pp. 289-291 (2000)

30. Liu, et al., "Overlapping PCR for Bidirectional PCR Amplification of Specific Alleles: A Rapid One-Tube Method for Simultaneously Differentiating Homozygotes and Heterozygotes", *Genome Res.*, Vol. 7, pp. 389-398 (1997)
31. Livak, et al. "Towards fully automated genome-wide polymorphism screening", *Nature Genet.*, Vol. 9, pp. 341-342 (1995)
32. Maniatis, et al., "Hybridization of DNA or RNA Immobilized on Filters to Radioactive Probes", *Molecular Cloning, A Laboratory Manual*, Cold Spring Harbor Laboratory, pp. 324-325 (1982)
33. Matthews, et al., "Insertional Inactivation of the *mec* Gene in a Transposon Mutant of a Methicillin-Resistant Clinical Isolate of *Staphylococcus aureus*", *Antimicrobial Agents and Chemotherapy*, Vol. 34, pp. 1777-9 (1990)
34. Murakami, et al., "Involvement of Multiple genetic Determinants in High-Level Methicillin Resistance in *Staphylococcus aureus*", *Journal of Bacteriology*, Vol. 171, No. 2, pp. 874-879 (1989)
35. Olive, et al., "Principles and Applications of methods for DNA-Based Typing of Microbial Organisms", *Journal of Clinical Microbiology*, Vol. 37, No. 6, pp. 1661-1669 (1999)
36. Pastinen, et al., "Multiplex, fluorescent, solid-phase minisequencing for efficient screening of DNA sequence variation", *Clinical Chemistry*, Vol. 42, No. 9, pp. 1391-1397 (1996)
37. Shuber, et al., "High throughput parallel analysis of hundreds of patient samples for more than 100 mutations in multiple disease genes", *Human Molecular Genetics*, Vol. 6, No. 3, pp. 337-347 (1997)
38. Stec, et al., "Automated Solid-Phase Synthesis, Separation, and Stereochemistry of Phosphorothioate Analogues of Oligodeoxyribonucleotides", *J. Am. Chem. Soc.*, Vol. 106, pp. 6077-6079 (1984)
39. Stein, et al., "Physiochemical properties of phosphorothioate oligodeoxynucleotides", *Nucleic Acids Research*, Vol. 16, No. 8, pp. 3209-3221 (1988)

40. Storhoff, et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticle Probes", *J. Am. Chem. Soc.*, Vol. 120, pp. 1959-1964 (1998)
41. Tomlinson, et al., "Detection of Biotinylated Nucleic Acid Hybrids by Antibody-Coated Gold Colloid", *Analytical Biochemistry*, Vol. 171, pp. 217-222 (1988)
42. Tyagi, et al., "Multicolor molecular beacons for allele discrimination ", *Nature Biotechnol.*, Vol. 16, pp. 49-53 (1998)
43. Uhlmann, et al., "Antisense Oligonucleotides: A New Therapeutic Principle", *Chemical Reviews*, Vol. 90, No. 4, pp. 544-584 (June 1990)
44. Wang, et al., "Large-Scale Identification, Mapping, and Genotyping of Single-Nucleotide Polymorphisms in the Human Genome", *SCIENCE*, Vol. 280, pp. 1077-1082 (1998)
45. Wenzel, et al., "Methicillin-Resistant *Staphylococcus aureus*: Implications for the 1990s and Effective Control Measures", *The American Journal of Medicine*, Vol. 91 (Suppl. 3B), pp. 221-227 (1991)
46. Zehbe, et al., "Sensitive *in Situ* Hybridization with Catalyzed Reporter Deposition, Streptavidin-Nanogold, and Silver Acetate Autometallography", *Am. J. Pathol.*, Vol. 150, pp. 1553-1561 (1997)
47. Zon, et al., Oligonucleotides and Analogues: A Practical Approach, pp. 87-108, (F. Eckstein, ed.), Oxford University Press, Oxford England (1991)
48. Zon, et al., "Phosphorothioate oligonucleotides: chemistry, purification, analysis, scale-up and future directions", *Anti-Cancer Drug Design*, Vol. 6, pp. 539-568 (1991)

In accordance with MPEP Sections 609 and 707.05(b), it is requested that each document cited (including any cited in applicant's specification which is not repeated on the attached Form PTO-1449) be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-

1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

The present Disclosure Statement is being submitted in compliance with 37 CFR 1.56 insofar as an Examiner might consider any of the cited documents important in deciding whether to allow the application to issue as a patent, but the citation of each document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the Examiner, in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 CFR 1.104(a) and 1.106(b) and, in the course of each search, will review for relevance every document cited on the attached form even if not initialed.

Early and favorable consideration is earnestly solicited.

Respectfully submitted,



Emily Miao
Registration No. 35,285

Dated: Aug. 15, 2004

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive
Chicago, Illinois 60606
Telephone: (312) 913-0001
Facsimile: (312) 913-0002

Form PTO-1449

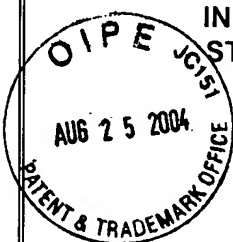
U.S. Department of Commerce
Patent and Trademark Office

Atty. Docket No.

Serial No.

02-1227-A

10/735,357

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

Applicant: Bao, et al.

Filing Date:
December 12, 2003

Group: 1645

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date
	1.	5,151,510	09/29/92	Stec, et al.	536	27	04/20/90
	2.	5,679,524	10/21/97	Nikiforov, et al.	435	6	08/09/96
	3.	6,361,944	03/26/02	Mirkin, et al.	435	6	06/25/99
	4.	6,417,340	07/09/02	Mirkin, et al.	536	23.1	10/20/00
	5.	6,506,564 B1	01/14/03	Mirkin, et al.	435	6	06/26/00
	6.	US2004/0086897 A1	05/06/04	Mirkin, et al.	435	6	05/07/03

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	7.	WO 95/12607	05/11/95	PCT				
	8.	WO 98/04740	02/05/98	PCT				
	9.	WO 98/59066	12/30/98	PCT				
	10.	WO 01/00876 A1	01/04/01	PCT				
	11.	WO 01/51665 A2	07/19/01	PCT				
	12.	WO 03/008539 A2	01/30/03	PCT				
	13.	WO 03/095973 A2	11/20/03	PCT				

OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

	14.	Bassell, et al., "Single mRNAs Visualized by Ultrastructural In Situ Hybridization Are Principally Localized at Actin Filament Intersections in Fibroblasts", <i>The Journal of Cell Biology</i> , Vol. 126, No. 4, pp. 863-876 (August 1994)
--	-----	---

15.	Blumberg, et al., "Rapid Development of Ciprofloxacin Resistance in Methicillin-Susceptible and -Resistant <i>Staphylococcus aureus</i> ", <i>J. Inf. Disease</i> , Vol. 63, pp. 1279-85 (1991)
16.	Braun, et al., "DNA-templated assembly and electrode attachment of a conducting silver wire", <i>Nature</i> , Vol. 391, p. 775-778 (February 19, 1998)
17.	Braun-Howland, et al., "Development of a Rapid Method for Detecting Bacterial Cells <i>In Situ</i> Using 16S rRNA-Targeted Probes", <i>Biotechniques</i> , Vol. 13, No. 6, pp. 928-932 (1992)
18.	Chen, et al., "A Homogeneous, Ligase-Mediated DNA Diagnostic Test", <i>Genome Res.</i> , Vol. 8, pp. 549-556 (1998)
19.	Chen, et al., "Fluorescence energy transfer detection as a homogeneous DNA diagnostic method", <i>Proc. Natl. Acad. Sci.</i> , Vol. 94, pp. 10756-10761 (1997)
20.	Day, et al., "Electrophoresis for Genotyping: Microtiter Array Diagonal Gel Electrophoresis on Horizontal Polyacrylamide Gels, Hydrolink, or Agarose", <i>Anal. Biochem.</i> , Vol. 222, pp. 389-395 (1994)
21.	Edwards, et al., "Rapid and Accurate Identification of Coagulase-Negative Staphylococci by Real-Time PCR", <i>J. Clin. Micro.</i> , Vol. 39, pp. 3047-3051 (2001)
22.	Frens, et al., "Controlled Nucleation for the Regulation of the Particle Size in Monodisperse Gold Suspensions", <i>Nature Physics Science</i> , Vol. 241, pp. 20-22 (January 1, 1973)
23.	Grabar, et al., "Preparation and Characterization of Au Colloid Monolayers", <i>Anal. Chem.</i> , Vol. 67, pp. 735-743 (1995)
24.	Hacker, et al., "Colloidal Gold: Principles, Methods, and Applications", M.A. Hayat, Ed. (Academic Press, San Diego), Vol. 1, Chap. 10 (1989)
25.	Hamels, et al., "Consensus PCR and Microarray for Diagnosis of the Genus <i>Staphylococcus</i> , Species, and Methicillin Resistance", <i>Biotechniques</i> , Vol. 31, pp. 1364-1372 (2001)
26.	Kennedy, et al., "Large-scale genotyping of complex DNA", <i>Nature Biotechnol.</i> , Vol. 21, pp. 1233-1237 (2003)
27.	Lander, E., "Array of Hope", <i>Nature Genet.</i> , Suppl. 21, pp. 3-4 (1999)
28.	LaPlanche, et al., "Phosphorothioate-modified oligodeoxyribonucleotides. III. NMR and UV spectroscopic studies of R _p -R _p , S _p -S _p , and R _p -S _p duplexes, [d(GG ₅ AATTCC)] ₂ , derived from diastereomeric O-ethyl phosphorothioates", <i>Nucleic Acids Research</i> , Vol. 14, No. 22, pp. 9081-9093 (1986)
29.	Letsinger, et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle - Oligonucleotide Conjugates", <i>Bioconjugate Chem.</i> , Vol. 11, pp. 289-291 (2000)

	30.	Liu, et al., "Overlapping PCR for Bidirectional PCR Amplification of Specific Alleles: A Rapid One-Tube Method for Simultaneously Differentiating Homozygotes and Heterozygotes", <i>Genome Res.</i> , Vol. 7, pp. 389-398 (1997)
	31.	Livak, et al. "Towards fully automated genome-wide polymorphism screening", <i>Nature Genet.</i> , Vol. 9, pp. 341-342 (1995)
	32.	Maniatis, et al., "Hybridization of DNA or RNA Immobilized on Filters to Radioactive Probes", <i>Molecular Cloning, A Laboratory Manual</i> , Cold Spring Harbor Laboratory, pp. 324-325 (1982)
	33.	Matthews, et al., "Insertional Inactivation of the <i>mec</i> Gene in a Transposon Mutant of a Methicillin-Resistant Clinical Isolate of <i>Staphylococcus aureus</i> ", <i>Antimicrobial Agents and Chemotherapy</i> , Vol. 34, pp. 1777-9 (1990)
	34.	Murakami, et al., "Involvement of Multiple genetic Determinants in High-Level Methicillin Resistance in <i>Staphylococcus aureus</i> ", <i>Journal of Bacteriology</i> , Vol. 171, No. 2, pp. 874-879 (1989)
	35.	Olive, et al., "Principles and Applications of methods for DNA-Based Typing of Microbial Organisms", <i>Journal of Clinical Microbiology</i> , Vol. 37, No. 6, pp. 1661-1669 (1999)
	36.	Pastinen, et al., "Multiplex, fluorescent, solid-phase minisequencing for efficient screening of DNA sequence variation", <i>Clinical Chemistry</i> , Vol. 42, No. 9, pp. 1391-1397 (1996)
	37.	Shuber, et al., "High throughput parallel analysis of hundreds of patient samples for more than 100 mutations in multiple disease genes", <i>Human Molecular Genetics</i> , Vol. 6, No. 3, pp. 337-347 (1997)
	38.	Stec, et al., "Automated Solid-Phase Synthesis, Separation, and Stereochemistry of Phosphorothioate Analogues of Oligodeoxyribonucleotides", <i>J. Am. Chem. Soc.</i> , Vol. 106, pp. 6077-6079 (1984)
	39.	Stein, et al., "Physiochemical properties of phosphorothioate oligodeoxynucleotides", <i>Nucleic Acids Research</i> , Vol. 16, No. 8, pp. 3209-3221 (1988)
	40.	Storhoff, et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticle Probes", <i>J. Am. Chem. Soc.</i> , Vol. 120, pp. 1959-1964 (1998)
	41.	Tomlinson, et al., "Detection of Biotinylated Nucleic Acid Hybrids by Antibody-Coated Gold Colloid", <i>Analytical Biochemistry</i> , Vol. 171, pp. 217-222 (1988)
	42.	Tyagi, et al., "Multicolor molecular beacons for allele discrimination", <i>Nature Biotechnol.</i> , Vol. 16, pp. 49-53 (1998)
	43.	Uhlmann, et al., "Antisense Oligonucleotides: A New Therapeutic Principle", <i>Chemical Reviews</i> , Vol. 90, No. 4, pp. 544-584 (June 1990)

44.	Wang, et al., "Large-Scale Identification, Mapping, and Genotyping of Single-Nucleotide Polymorphisms in the Human Genome", <i>SCIENCE</i> , Vol. 280, pp. 1077-1082 (1998)
45.	Wenzel, et al., "Methicillin-Resistant <i>Staphylococcus aureus</i> : Implications for the 1990s and Effective Control Measures", <i>The American Journal of Medicine</i> , Vol. 91 (Suppl. 3B), pp. 221-227 (1991)
46.	Zehbe, et al., "Sensitive <i>in Situ</i> Hybridization with Catalyzed Reporter Deposition, Streptavidin-Nanogold, and Silver Acetate Autometallography", <i>Am. J. Pathol.</i> , Vol. 150, pp. 1553-1561 (1997)
47.	Zon, et al., <u>Oligonucleotides and Analogues: A Practical Approach</u> , pp. 87-108, (F. Eckstein, ed.), Oxford University Press, Oxford England (1991)
48.	Zon, et al., "Phosphorothioate oligonucleotides: chemistry, purification, analysis, scale-up and future directions", <i>Anti-Cancer Drug Design</i> , Vol. 6, pp. 539-568 (1991)

Examiner	Date Considered
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with any communication.